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ABSTRACT

This paper reports the outcomes of a motivation training program for preadolescents. The program consisted of activities, strategies, and 18 mini-lessons designed to enhance preadolescents' academic achievement motivation. Cartoon characters were used to present motivational concepts such as causal attributions, self-efficacy, persistence, confidence, and responsibility. Program activities included goal setting, role playing, using strategies, and reading and writing stories depicting motivational concepts. An evaluation of the program indicated that preadolescents who received motivation training obtained higher motivation scores than did preadolescents who did not receive training or were tested before training started. Subjects were 151 public elementary school students in grades 4, 5, and 6 who received the motivation training program. A control group of 200 students in a similar public elementary school did not receive the motivation training. The effectiveness of the training was assessed using a separate sample pretest-posttest quasiexperimental design with 60 randomly-selected students from each school. There were five fourth-graders, five fifth-graders, and five sixth-graders in each of four cells (15 students from each school at either pretesting or posttesting). Motivation was operationally defined as scores on the Antecedent Attributions Test and the Preadolescent Motivation Inventory. Five tables present study data. There are 32 references. (SLD)

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Motivation Training with Preadolescents

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Running head: MOTIVATION TRAINING

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Abstract

This paper reports the outcomes of a motivation training program for preadolescents. The program consisted of activities, strategies, and 18 mini-lessons designed to enhance preadolescents' academic achievement motivation. Cartoon characters were used to present motivational concepts such as causal attributions, self-efficacy, persistence, confidence, and responsibility. Program activities included goal setting, role playing, using strategies, and reading and writing stories depicting motivational concepts. An evaluation of the program indicated that preadolescents who received motivation training obtained higher motivation scores than preadolescents who did not receive training or were tested before training was begun. Implications of the findings for education are discussed.

Motivation Training with Preadolescents

One of the critical problems facing educators and researchers is how to apply the rapidly growing knowledge base of theories and research findings of student motivation. This knowledge base obviously has significant implications for instruction, teacher preparation, and school-university collaboration (R. E. Ames & C. Ames, 1984). Collaboration is especially important because basic research findings cannot be readily translated into curricula that will work in any situation due to the complex interrelationships among individual difference variables, background variables, and the school environment (Brophy, 1983; deCharms, 1984).

The purpose of the present study was to design, implement, and evaluate a school-based motivation training program. The study was (a) designed and implemented through the joint effort of researchers and elementary school faculty, (b) structured to include a wide range of concepts and strategies from motivation theories and research findings, (c) devised to teach motivation concepts (e.g., attributions, goal setting, expectancies, self-perceptions) directly to students, and (d) implemented across the entire school curriculum.

The importance of the relationship among student motivation, cognition, and school learning is being acknowledged by researchers and practitioners (R. E. Ames & C. Ames, 1984). Researchers interested in student cognition have suggested that the inclusion of motivational strategies as a part of the school curriculum is essential for optimal student learning (e.g., Borkowski, Reid, & Kurtz, 1984; Reid & Borkowski, 1987; Resnick, 1987). Borkowski et al. (1984) asserted that affective, personal, and motivational variables must be included when teaching cognitive strategies if those strategies are to have long-term effects. Likewise, Resnick (1987) reviewed research on higher-order thinking skills and suggested that the teaching of thinking skills must be

accompanied by efforts to enhance students' motivation for using them. As a result of this interest in cognition, a body of theories and research is developing, providing implications for the enhancement of students' motivation (R. E. Ames & C. Ames, 1984; C. Ames & R. E. Ames, 1985, 1989; Lepper & Hodell, 1989; Weiner, 1986). Although there is currently no comprehensive, unifying theory of motivation, cognition is becoming a pervasive theme across research on student motivation (Maehr, 1989).

This theme of cognition in research on motivation was provided impetus by early programs such as achievement motivation training (Alschuler, 1973; McClelland, 1972) and personal causation training (deCharms, 1968, 1976). Some of these early attempts (e.g., Alschuler, 1973; McClelland, 1972) to enhance students' motivation resulted in increases in both motivation and achievement, but were conducted exclusively by people from outside of the school. Although the results of these programs were encouraging and held promise for further research, they failed to provide teachers with the theoretical knowledge and derived strategies that they could use within the regular school curriculum. To facilitate teachers' development of this knowledge, deCharms (1968, 1976) solicited the assistance of teachers to develop a program whereby teachers provided personal causation training to students. DeCharms concluded that teachers' sense of control of and ownership in programs was a necessary condition to the success of personal causation training.

More recently, a large body of research has demonstrated the relationship between achievement and specific cognitive motivational processes such as attribution retraining, goal setting, self-concept, and self-efficacy (Borkowski, Weyhing, & Carr, 1988; Marsh, 1986; Schunk, 1989; Short & Ryan, 1984). For example, Borkowski et al. (1988) showed that a combination of causal attribution retraining and instruction produced higher reading

comprehension scores than either strategy alone. Reading comprehension scores of students who received both attributional retraining and reading strategy instruction were higher than those of students who received only one or the other. Borkowski related that attributional retraining did not seem to change students' general, long-term antecedent attributions. This lack of generalization does not necessarily mean that the strategies would not be effective if applied in the same way in other situations. Instead, in light of other similar studies (e.g., Dweck, 1975; Fabricius & Hagen, 1984; Reid & Borkowski, 1987; Short & Ryan, 1984), the results may imply that efforts should be multifaceted, applied across the entire school curriculum, and applied for longer periods of time.

In another line of research on student motivation, there is evidence of developmental differences (Nicholls, 1978; Stipek, 1984). Many preadolescents begin to lose the enthusiasm for school that they displayed only a few years earlier (Holt, 1964; Nicholls, 1978), causing parents and teachers to become puzzled, worried, and frustrated. Preadolescents were targeted by the present study because they may be more vulnerable to the development of apathy and maladaptive motivational processes than students of any other age (Holt, 1964; Nicholls, 1978; Stipek, 1984). As a result of this vulnerability, preadolescents are especially in need of help from parents, teachers, school counselors, and significant others who can help them develop adaptive and rational motivational processes. Without intervention, academic failure experiences are likely to be misinterpreted and overemphasized, causing the preadolescent to become caught in a repeating cycle of failure and negative self-evaluation (Covington, 1984).

The present study was conducted to address two research questions. First, will preadolescents who receive motivation training obtain higher Antecedent Attribution Test scores than preadolescents who did not receive

training or who were tested before training was begun? Second, will preadolescents who receive motivation training obtain higher Preadolescent Motivation Inventory scores than preadolescents who did not receive training or who were tested before training was begun?

Method

Samples

Two public elementary schools that were comparable in terms of student achievement and ability, family socioeconomic level, school organization, and number of faculty with graduate degrees were selected to provide separate, but comparable samples of 4th-, 5th-, and 6th-grade students. One school was the site of the motivation training for 151 students, while the second school served as the control group of 200 students by participating in activities similar in nature and duration, but not related, to the motivation training. Eighty-six percent of the students at school #1 were white, 13% were black, and 1% were of ethnic origin other than white or black, with 49% being male and 51% female. Eighty-six percent of the students at school #2 were white, 11% were black, and 3% were of ethnic origin other than white or black, with 55% being male and 45% being female.

Design

The use of a true experimental design in this study was precluded because students from intact classrooms could not be randomly assigned to experimental or control conditions. Therefore, the effectiveness of the training was assessed using a separate-sample, pretest-posttest quasi-experimental design (Campbell & Stanley, 1963).

For the purposes of this study, 60 participants from both schools were randomly selected for pre- and posttesting. Thirty students, 15 from each of the two schools, were randomly selected for pretesting. At the completion of training, an additional 30 students, 15 from each of the two schools, were

randomly selected from the remaining pool for posttesting. There were 5 fourth-graders, 5 fifth-graders, and 5 sixth-graders in each of four cells. Table 1 summarizes the quasi-experimental design of the study. Dependent measures consisted of scores on the AAT and the PMI. Data were analyzed using separate two-way (training vs. no training x pretest vs. posttest) factorial ANOVAs.

Insert Table 1 about here

Instrumentation

In the present study, motivation was operationally defined as scores on the Antecedent Attributions Test (AAT) and the Preadolescent Motivation Inventory (PMI). Both the AAT and PMI purport to measure long-term motivational processes. The AAT provides a measure of a specific motivational process (i.e., causal attributions), while the PMI provides a general, multifaceted measure of motivation.

Antecedent Attributions Test (AAT). The AAT (Borkowski et al., 1988; Reid & Borkowski, 1987) was designed to elicit causal attributions to hypothetical success and failure situations. The original version of the test consisted of four success and four failure situations. Students rated potential causes of success and failure outcomes. Krause (1983) reported median test-retest reliability of the test to be 0.61. Borkowski et al. (1988) reported coefficient alpha of the original test to be 0.64 for a group of 75 children and adolescents.

The AAT was modified for the purposes of the present study. The wording of two statements was clarified. In addition, two success and two failure items were added, providing a total of twelve statements. Later, the six failure situations were deleted for the purpose of the present study because

of the need for further refinement of the psychometric properties of the items. Following each statement were five possible causes of the hypothetical success (e.g., I tried hard, I had help, I was lucky). The directions and scoring of the test were also modified. Students were instructed to "read each statement and think about what might have caused this to happen to you. Then, put a '1' beside the reason that you believe is most like you. Put a '2' beside the reason that is second most like you." The test was scored by assigning differential weights to "motivation toward success" and "motivation to avoid failure" attributions. For "motivation toward success" attributions, a "1" was assigned a weight of 5 and a "2" was assigned a weight of 4. For "motivation to avoid failure" attributions, a "1" was assigned a weight of 1 and a "2" was assigned a weight of 2. Possible attributions that were not selected were assigned a weight of zero. Hence, a high score indicated high motivation and a low score was indicative of low motivation. The modified version of the AAT was piloted on a group of 171 4th-, 5th-, and 6th-grade students. Coefficient alpha (SPSS, Inc., 1983) for the 6-item scale was 0.79.

Preadolescent Motivation Inventory (PMI). The PMI represents a downward extension of an earlier researcher-developed measure of motivation referred to as the Children's Academic Motivation Inventory (CAMI). The CAMI was originally designed (Hughes, Redfield, & Martray, 1989) to provide a general, multifaceted measure of motivation in junior high school students (7th- & 8th-grade students). The CAMI was modified for the purposes of this study in several ways. First, the number of items was reduced from 60 to 35 to minimize boredom or fatigue which might threaten reliability. Second, the length of the items was shortened so that reading ability should not influence response consistency. Third, the six-point Likert-type format used in the original CAMI was reduced to a four-point format to make the selection of a response less complicated for younger students. Scale anchors of the modified

version were strongly agree (4) to strongly disagree (1). The 35 PMI items in the modified version were chosen based on the results of two pilot studies. Participants in the first pilot study were 171 4th-, 5th-, and 6th-grade students. Coefficient alpha (SPSS, Inc., 1983) for the PMI was 0.85. Five items having item-total correlation coefficients below +.30 were rewritten or replaced prior to the second pilot study. The second pilot study included 151 4th-, 5th-, and 6th-grade students. Five items having item-total correlation coefficients below +.30 were discarded, yielding 30 items in the present version. Coefficient alpha (SPSS, Inc., 1983) of the 30-item PMI was 0.83. Response data from the AAT and PMI were available for 118 of the 171 4th-, 5th-, and 6th-grade students in the first pilot study. The zero-order correlation between AAT scores and PMI scores was +.22 ($p < .05$).

Procedure

Program Development. The faculty and administrative staff of School #1, in collaboration with two university researchers, agreed to develop, implement, and evaluate a theory- and research-based motivation training program. Based on deCharms' (1968, 1976) finding that school-based research is most effective when teachers share and perceive that they share in decision making, the teachers were given control of the development and implementation of the program.

Before the teachers were asked to develop materials, one of the university researchers conducted six 1-hour seminars on cognitive aspects of motivation to the school faculty. These sessions were conducted at times normally scheduled for faculty meetings at the school. Concepts such as locus of control, success motivation as opposed to failure-avoiding motivation, and methods of attitude change were presented and discussed.

Next, the teachers and researchers identified and located short stories and books for young readers which could be used to illustrate motivation

concepts. In addition to these published materials, the teachers also wrote over 30 short stories and helped design two cartoon characters. The short stories written by the teachers depicted various motivational concepts. Questions that teachers could use to help students understand and internalize the concepts also were written for each story.

The teachers and researchers decided that cartoon characters would provide a more concrete means by which to illustrate motivational concepts than abstract words (e.g., origin, pawn) such as those used by deCharms (1968, 1976). The cartoon characters were conceptualized by the teachers, researchers, and professional artist, and then drawn by the artist. The characters were designed, drawn, and named to illustrate motivational dispositions. An attempt was made to make the characters androgynous. One character, named Cando, represented the concept of motivation toward success (e.g., positive self-concept, persistence, confidence). Another character, named Doom, represented the concept of motivation to avoid failure (e.g., negative self-concept and self-esteem, learned helplessness). Cando and Doom were drawn in color and reproduced on 18 x 24 inch posters. The idea that everyone has characteristics of both Cando and Doom was emphasized throughout the training.

Pretest. As specified in Table 1, the AAT and PMI were administered to the training sample pretest control group and the no training sample pretest control group.

Motivation Training. Upon completion of the development of the project materials and pretesting, the program was started in all 4th-, 5th-, and 6th-grade classrooms at School #1. To provide experimental control for the presence of the researcher at School #1 (training sample), the same researcher worked as a volunteer teachers' aide in participating classrooms at School #2 (no training sample). Activities performed at School #2 were similar in

duration and nature, but not related, to the activities performed with the training sample and included tutoring individuals in math and reading and teaching reading lessons that were part of the regular curriculum. During the first 8 weeks of the program, the researcher spent one-half hour per week in each classroom at both schools. During the last 5 weeks of the program, the researcher spent one hour per week (2 one-half hour sessions) in each classroom at both schools.

The motivation training program included 18 "motivation" lessons during which concepts were presented to be integrated into the daily "academic" lessons. The "motivation" lesson plans consisted of a series of mini-lectures, discussions, and activities which were led by one of the researchers. The "academic" lesson plans consisted of all other school activities. The teachers' accepted responsibility throughout the program for reinforcing concepts presented during the motivation lessons, integrating the concepts into daily lessons and activities (especially daily reading lessons), providing attributional feedback to students, using the cartoon characters to integrate motivational concepts into daily classroom activities, encouraging students to think about the cartoon characters and concepts, and encouraging them to use the strategies to become better learners. The teachers also contributed by reading and discussing stories depicting motivational concepts.

The motivation training consisted of three phases. During the first phase of training, six one-half hour mini-lectures were conducted in each of the six 4th-, 5th-, and 6th-grade classrooms. The lesson concepts of the six mini-lectures were (a) introduction of the program and cartoon characters, (b) characteristics of effective learners, (c) causal attributions, (d) responsibility (connecting consequences with behavior), (e) ways to avoid failure, and (f) causes of misbehavior.

During the second phase of training, five lessons were conducted, three

by one of the researchers and two by the teachers. During the lessons, students were (a) shown a film depicting the concepts of persistence, learning from others, and confidence, (b) asked to read library books and write reports describing the motivational concepts depicted in the stories, and (c) led in a discussion regarding thoughts and quotations that might be characteristic of Cando and Doom. Posters of Cando and Doom and quotations were displayed on classroom, library, and hallway bulletin boards. Participants were instructed to write book reports describing how the characters in the book were motivated and how they were like Cando and Doom. The library reading assignment was continued for five weeks. Teachers read and discussed in class published stories depicting motivational concepts. Teachers also began to read and discuss with the classes the teacher-developed stories depicting motivational concepts.

During the final phase of training, one of the researchers conducted nine sessions in each class. The lesson concepts included (a) writing an autobiography, (b) role playing (three sessions), (c) goal setting, (d) using motivational strategies, (e) writing stories depicting motivational concepts (two sessions), and (f) program debriefing.

Posttest. As specified in Table 1, the AAT and PMI were administered to the training sample posttest group and the no training sample posttest control group.

Results

The first hypothesis examined was that there would be a significant interaction between condition (training vs. no training) and test (pretest vs. posttest) effects, using AAT scores as the dependent variable. Table 2 presents descriptive statistics for the AAT scores for condition x test. A two-way factorial ANOVA (SAS, Inc., 1985), using condition and test as the independent variables, and AAT scores as the dependent variable, indicated a

significant condition x test interaction (F = 24.63; df = 1, 56; $p < .05$). The ANOVA results are summarized in Table 3. Follow-up analysis of AAT scores, using Tukey's HSD test, indicated that the training sample posttest group obtained significantly ($p \leq .05$) higher mean AAT scores than both the training sample pretest control group and the no training sample posttest control group.

Insert Tables 2 and 3 about here

The second hypothesis addressed was that there would be a significant interaction between condition (training vs. no training) and test (pretest vs. posttest) effects, using PMI scores as the dependent variable. Table 4 presents descriptive statistics for the PMI scores for condition x test. A two-way factorial ANOVA (SAS, Inc., 1985), using condition and test as the independent variables, and PMI scores as the dependent variable, indicated a significant condition x test interaction (F = 4.97; df = 1, 56; $p < .05$). The ANOVA results are summarized in Table 5. Follow-up analysis using Tukey's HSD test indicated that the training sample posttest group obtained significantly ($p \leq .05$) higher mean PMI scores than both the training sample pretest control group and the no training sample posttest control group.

Insert Tables 4 and 5 about here

Discussion

The results of this study provide evidence to support the hypothesis that preadolescents' motivation may be positively affected by training. Using AAT and PMI scores as measures of motivation, preadolescents who received motivation training obtained higher scores than preadolescents who did not

receive training or were tested before training was begun. The results of the study were practically significant, as measured by eta squared, in addition to being statistically significant. The model (Condition x Test) accounted for 35% of the total variance in AAT scores and 28% of the total variance in PMI scores.

The findings do not shed light on any particular motivational strategy or theory of motivation because the training consists of a wide variety of strategies and activities which have been demonstrated to be effective. However, the program is significant because it demonstrates that the use of a combination of strategies (which are known to be effective in and of themselves) may result in changes in preadolescents' motivation that are not usually observed when the elements are presented in isolation or for relatively short periods of time. The major contribution made by this study is that training developed and implemented via the joint efforts of public school faculty and university researchers, designed to include a wide variety of motivational concepts and strategies taught directly to students, and implemented across all academic areas for a relatively long period of time may enhance students' motivation, as measured by the AAT and PMI.

The program has implications for teachers because it provides a concrete and systematic means by which they may impact students' motivation. The results of this study imply that collaborative, school-based research between university and elementary school faculty may be effective in influencing changes in student motivation. At the end of the program a focus group interview was conducted by an external evaluator. During the interview, the teachers stated a belief that their credibility among the students was enhanced by the fact that an adult from outside of the school worked with them. Given a concrete and systematic program and support from outside of the

school, teachers may perceive more power to make a difference in childrens' lives.

Further research is also warranted to determine if the effects of motivation training are maintained over an extended period of time, if changes in students' motivation translate into improved achievement, and if results generalize to other populations of teachers, students, researchers, and measures of motivation.

The improvement of students' motivation may be viewed as a goal in itself as is soon to be the case in the Commonwealth of Kentucky. Kentucky has recently passed a massive educational reform law. An important piece of the reform is performance assessment of a school's progress toward meeting a set of six goals (Pankratz, 1990; Redfield, 1990). One of the six goals is to "develop a student's ability to become a self-sufficient individual" and includes objectives such as "possesses a positive academic self-concept." Schools are to be held accountable for making progress toward achieving this and other goals. Programs such as the one described in this paper may assist a school to meet the goal that all students possess a positive academic self-concept.

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Table 1

Quasi-experimental Design of the Study

Condition	Test	
	Pretest	Posttest
Training Groups (School #1)	Control	Experimental
No Training Groups (School #2)	Control	Control

Note: n = 15 for each group.

Table 2

Descriptive Statistics for Antecedent Attribution Test Scores

	Pretest		Posttest	
Condition	M	SD	M	SD
Training	41.8	5.5	49.2	5.0
No Training	45.3	4.8	39.2	5.7

Table 3

ANOVA Summary Table for Two-way Factorial, Using Condition and Test as the Independent Variables and AAT Scores as the Dependent Variable

Source	SS	df	MS	F
Condition	(160.07)	(1)		
Test	(6.67)	(1)		
Condition x Test	680.07	1	680.07	24.63
Error	1546.13	56	27.61	
Total	2392.93	59		

Note: $p < .05$.

Table 4

Descriptive Statistics for Preadolescent Motivation Inventory Scores

	Pretest		Posttest	
Condition	M	SD	M	SD
Training	99.2	7.8	109.3	4.4
No Training	98.7	7.2	100.6	8.5

Table 5

ANOVA Summary Table for Two-way Factorial, Using Condition and Test as the Independent Variables and PMI Scores as the Dependent Variable

Source	SS	df	MS	F
Condition	(317.40)	(1)		
Test	(540.00)	(1)		
Condition x Test	256.27	1	256.27	4.97
Error	2888.27	56	51.57	
Total	4001.93	59		

Note: $p < .05$.